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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/602,464	06/23/2003	Masahiro Kawaguchi	1232-5069	3975
27123	7590	10/10/2008	EXAMINER	
MORGAN & FINNEGAN, L.L.P. 3 WORLD FINANCIAL CENTER NEW YORK, NY 10281-2101			FORMAN, BETTY J	
			ART UNIT	PAPER NUMBER
			1634	
			NOTIFICATION DATE	DELIVERY MODE
			10/10/2008	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTOPatentCommunications@Morganfinnegan.com  
Shopkins@Morganfinnegan.com  
jmedina@Morganfinnegan.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/602,464	<b>Applicant(s)</b> KAWAGUCHI, MASAHIRO	
	<b>Examiner</b> BJ Forman	<b>Art Unit</b> 1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-11 and 16-18 is/are pending in the application.
- 4a) Of the above claim(s) 4-11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 16-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 18 July 2008 has been entered.

### ***Status of the Claims***

2. This action is in response to papers filed 18 July 2008 in which claim 1 was amended and claim 3 was canceled. The amendments have been thoroughly reviewed and entered.

The previous rejections in the Office Action dated 4 February 2008 are withdrawn in view of the amendments. Applicant's arguments have been thoroughly reviewed and but are deemed moot in view of the amendments, withdrawn rejections and new grounds for rejection. New grounds for rejection are discussed.

Claims 1-2, 16-18 are under prosecution.

***Claim Objections***

3. Claim 1 is objected to for the recitation “a nucleic acid probess” because the syntax is incorrect.
4. Claim 16 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 1 defines the heat conducting member as formed of resin or a composite of metal and resin. Claim 16, which depends from Claims 1 and 2, defines the heat conducting member as formed of metal, resin or a composite of metal and resin. As such, Claim 16 is broader in scope than Claim 1. Therefore, Claim 16 does not further limit Claim 1.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claim 18 is rejected under 35 U.S.C. 102(e) as being anticipated by Goldman et al (U.S. Patent Application Publication No. 2003/0072685, filed 11 October 2001).

Regarding Claim 18, Goldman et al disclose a heat conduction adapter (i.e. top plate #100), the adapter comprising a first face having a plurality of legs (#104) having the same shape as microtubes and a second face for contacting the surface of a glass slide wherein the legs are fitted into the holes of a heater (base plate #106) (¶ 19-21 and Fig. 1-2).

It is noted that Goldman does not teach the glass slide is a nucleic acid probe array. However, the instant claim does not define the device having the array. The claim merely defines an intended use for the heat conduction adapter i.e. using a heater..... in temperature control for a nucleic acid probe array."

The courts have stated that a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). Because Goldman teaches the heat conduction adapter is configured for use with a glass slide, the reference is deemed to teach all the structural requirements of the claim.

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 1634

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-2, 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goldman et al (U.S. Patent Application Publication No. 2003/0072685, filed 11 October 2001) in view of Atwood et al (U.S. Patent No. 5,364,790, issued 15 November 1994).

Regarding Claim 1, Goldman et al disclose a reaction system comprising a glass substrate, and a heat conduction member in contact with the substrate (i.e. top plate #100), a temperature control block (i.e. base plate #106, ¶ 1-2 and 9-11) wherein the base plate has a plurality of holes for inserting microtube-sized projects from top plate (Fig. 4-6) wherein the heat conducting member comprises a first face having a plurality of legs (#104) having the same shape as microtubes and a second face for contacting the surface of a glass slide wherein the legs are fitted into the holes of a heater (base plate #106) (¶ 19-21 and Fig. 1-2) and wherein the heat conducting member is formed of a metal resin composite (¶ 27). Goldman et al do not teach the glass substrate comprises an array of nucleic acid probes.

However, Atwood et al teach a reaction system for nucleic acid amplification comprising a glass slide substrate comprising a plurality of primers (Column 2, lines 51-67) and a cover for forming a chamber (Column 17, lines 52-63). Atwood et al further teach a heat conducting member in contact with the slide wherein a plurality of holes (grooves, #116 in plate #110) are filled with a heat conducting liquid member so as to be in contact with the back surface of the slide and be in heating contact with the heat block (Fig. 14-15, Column 14, line 52-Column 15, line 26).

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the heat conducting member and liquid of Atwood to the reaction device of Goldman. One of ordinary skill in the art would have been motivated to do so with a reasonable expectation of success and for the benefit of adapting a commercially available thermocycler for PCR on a flat surface and eliminating any need for additional equipment for PCR.

Regarding Claim 2, Goldman et al teach the system wherein the heat block is adaptable for a microtube (§ 20).

Regarding Claim 16, Goldman et al teach the system wherein the heat conducting member is formed of a metal resin composite (§ 27).

Regarding Claim 17, Atwood et al teach a reaction system for nucleic acid amplification comprising a glass slide substrate comprising a plurality of primers (Column 2, lines 51-67) and a cover for forming a chamber (Column 17, lines 52-63). Atwood et al further teach a heat conducting member in contact with the slide wherein a plurality of holes (grooves, #116 in plate #110) are filled with a heat conducting liquid member so as to be in contact with the back surface of the slide and be in heating contact with the heat block (Fig. 14-15, Column 14, line 52-Column 15, line 26).

9. Claims 1-2, 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kain et al (U.S. Patent Application Publication No. 2002/0039728, filed 12 February 2001) in view of St. George (PCR: Running Hot and Fast, Science, Statistical

Art Unit: 1634

Software Supplement, 27 February 1997, as defined by labtrade.com) and Suzuki et al (U.S. Patent No. 6,1130,279, issued 10 October 2000).

Regarding Claims 1 and 18, Kain et al teach a device comprising a reaction unit having a substrate (¶ 128-129) having nucleic acid probes immobilized on a surface of the array (¶ 149), a cover (10, ¶ 101), for forming a chamber with the surface so as to permit liquid to fill the chamber a heat conduction member (heat transfer features, ¶ 119-120) and temperature control block (¶ 130) including a plurality of holes for inserting tubes (¶ 129) wherein the heat conduction member includes a leg for insertion into the holes (alignment pins, ¶ 122)(Fig. 7-8).

Kain teaches the reaction unit is adaptable for any substrate e.g. plate or tube (¶ 128-129) but does not teach the substrate has both holes for tubes and a probe array.

However, dual heat blocks were well known and routinely practiced in the art at the time the claimed invention was made as taught by St. George as defined by the labtrade website.

St. George (page 8) teaches a thermocycler (PTC 200 DNA Engine) that holds multiple dual-mode inserts so as to accommodate any PCR application “the world has to offer”. The labtrade website defines the dual mode insert holds both slide and tubes (see printout from website).

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the PCT 200 DNA dual-mode insert to the device of Kain. One of ordinary skill in the art would have been motivated to do so with a



Art Unit: 1634

reasonable expectation of success and for the benefit of having a device that accommodates any PCR application (St. George).

Kain teaches the device wherein the heat conduction member is formed of metal (§ 97 and 121) but does not teach a resin or composite of resin and metal. However, resin-metal composites for thermally conducting substrates were well known and routinely practiced in the art at the time the claimed invention was made as taught by Suzuki et al (Abstract). Suzuki et al further teach the resin metal composites as especially preferred for use in PCR based on the properties of heat resistance and thermal conductance (Column 4, lines 11-18). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the resin composite of Suzuki to the PCR substrate of Kain. One of ordinary skill in the art would have been motivated to do so with a reasonable expectation of success and for the preferred properties of heat resistance and thermal conductance as taught by Sukuki (Column 4, lines 11-18).

Regarding Claim 2, Kain teaches the heat block is adapted to receive a microtube (§ 128-129).

Regarding Claim 16, Kain teaches the device wherein the heat conduction member is formed of metal (§ 97 and 121).

Regarding Claim 17, Kain et al teach a device comprising a reaction unit having a substrate (§ 128-129) having nucleic acid probes immobilized on a surface of the array (§ 149), a cover (10, § 101), for forming a chamber with the surface so as to permit liquid to fill the chamber a heat conduction member (heat transfer features, §

Art Unit: 1634

119-120) and temperature control block (¶ 130) including a plurality of holes for inserting tubes (¶ 129) wherein the heat conduction member includes a leg for insertion into the holes (alignment pins, ¶ 122)(Fig. 7-8).

### ***Conclusion***

10. No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BJ Forman whose telephone number is (571) 272-0741. The examiner can normally be reached on 6:00 TO 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla can be reached on (571) 272-0735. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BJ Forman

Application/Control Number: 10/602,464  
Art Unit: 1634

Page 10

Primary Examiner  
Art Unit 1634

/BJ Forman/  
Primary Examiner, Art Unit 1634